

Nitrate concentrations in excess of 50 to 100 mg L⁻¹ NO₃-N are found widely in interstitial waters from unsaturated Quaternary sands in northern Senegal. These high concentrations and correspondingly enhanced NO₃/Cl ratios are being produced in the soil zone beneath both uncultivated and rain-fed cultivated areas. High nitrate (avg. 11 mg L⁻¹ NO₃-N) is also found extensively in shallow groundwaters. The NO₃-N signature is preserved as a result of the aerobic conditions. The unsaturated zone contains a history of N inputs over a period of approximately 50 to 400 yr. Variations in the NO₃/Cl ratio are mainly related to the growth of natural or introduced leguminous vegetation. There is also evidence that high ratios relate to wetter and low values to more arid climatic periods. These results, taken together with evidence from other parts of the world, demonstrate that high nitrate concentrations are likely to be a widespread and established phenomenon of groundwaters in semiarid regions.